CLAIMS

1. Wind energy system having a rotor that can be driven by the wind, preferably having one or more rotor blades that can be adjusted in angle, a generator directly or indirectly connected with the rotor, to generate electric energy, which is configured as an asynchronous generator having a super-synchronous converter cascade in the rotor circuit, for slip-variable generator operation, so that power output of the generator is possible at different speeds of rotation of the rotor, and an operation guide system that is configured to regulate the speed of rotation of the rotor, within a predetermined wind speed range, preferably with adjustment of the rotor blade angles,
characterized in that the super-synchronous rectifier cascade is configured in the rotor circuit for feeding the slip power into the network.

2. Wind energy system according to claim 1, **characterized in that** the super-synchronous converter cascade has a DC voltage intermediate circuit that is configured as a high-set element.

3. Wind energy system according to claim 1 or 2, **characterized in that** the high-set element is configured to switch at a frequency that is a multiple, preferably a 10x to 100x multiple, of the network frequency.

4. Wind energy system according to claim 1, 2, or 3, **characterized in that** the high-set element has pulse-width modulation.

5. Wind energy system according to one or more of the preceding claims, **characterized in that** the high-set element is configured to switch, with IGBT switches having variable frequency.

6. Wind energy system according to one or more of the preceding claims, **characterized in that** the IGBT switches of the two high-set elements are configured to switch at a phase offset of 180 degrees relative to one another.

7. Wind energy system according to one or more of the preceding claims, **characterized in that** the stator is configured to short-circuit at a low wind speed, preferably by way of a three-phase slip resistor, and to cut off from the network.

8. Method for regulating the power output of a wind energy system, in that the slip is regulated, **characterized in that** the slip power is fed into the power network.

9. Method according to claim 8, **characterized in that** the intermediate voltage of the converter cascade is raised to the network voltage and regulated in accordance with the slip.

10. Method according to claim 8 or 9, **characterized in that** the power output of the converter cascade into the network is controlled by means of pulse-width modulation.

11. Method according to claim 8, 9, or 10, **characterized in that** the feed of the intermediate circuit power into the network takes place with adaptation to the reactive power demand of the network.

12. Method according to one of claims 8 to 11, **characterized in that** switching of the intermediate circuit current takes place by means of the two high-set elements at a 180 degree phase offset relative to one another, preferably pulse-width modulated and/or with variable frequency.

13. Method according to one of claims 8 to 12, **characterized in that** the rotary current generator is operated in normal operation with the super-synchronous cascade with the high-set element under normal conditions, and is converted to a simple asynchronous machine and operated as such at low wind, by cutting its stator off from the power network and short-circuiting it, by way of a three-phase slip resistor.

14. Method according to one of claims 8 to 13, **characterized in that** the asynchronous generator with the capacitors is operated in self-starting manner, and feeds its electric energy into the intermediate circuit capacitors with variable frequency, as a function of the rotor revolutions, by way of the rectifier and the high-set elements, and the pulse converter feeds the generated energy into the power network.

15. Method according to one of claims 8 to 14, **characterized in that** the generator is synchronized with the stator and connected with the power network, as soon as the mechanical

power exceeds the electric power of the pulse converter, and the super-synchronous slip power is fed into the network with the cascade array.

16. Method according to one of claims 8 to 15, **characterized in that** the at least one cable of the generator, which is preferably disposed in a gondola, is passed to a wiring cabinet in a foot of the tower, and act as a slip resistor.